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AN-A46: Landsat Scene-to-Scene Registration Assessment

E83-10137

TM-85198

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Quarterly Report for Period: 22 November 1982 - 21 January 1983

Objectives:

- to evaluate the scene-to-scene registration performance of the Landsat-4 MSS relative to previous MSS systems.
- to evaluate the scene-to-scene registration performance of the Landsat-4 Thematic Mapper (TM).

Activity this Quarter:

- Landsat-4 MSS data (16 September 1982 scene) received from USGS/EDL 4 January 1983.
- MSS data have been reformatted and scene-to-scene registration, with previous MSS data is nearing completion.
- Landsat-2 to Landsat-2 MSS registration has been completed. The results obtained will serve as a baseline against which the registrations containing Landsat-4 MSS will be compared.
- TM data (16 September 1982) received 20 December 1982.
- Participated in GSFC investigator workshop, 11-12 January.

Activity Anticipated Next Quarter:

- Completion of Landsat-4 MSS to prior MSS registration, and a comparison with the Landsat-2 to Landsat-2 MSS registration already complete.
- Collection of a second TM and Landsat-4 MSS data set.
- Initiation of TM-to-TM scene-to-scene registration (if data received).
- Initiation of Landsat-4 to Landsat-4 MSS scene to scene registration (if data received).
- Participation in the Scientific Characterization Early Results Symposium (22-24 February) to be held at GSFC.

(E83-10137) AN-A46: LANDSAT SCENE-TO-SCENE  
REGISTRATION ASSESSMENT (NASA) 2 p  
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Problems Encountered:

- TM data set as originally processed (for the 16 September 1982 New Orleans area) was found to have excessive yaw which exaggerated the forward/reverse scan pixel misalignment. GSFC software was subsequently modified to minimize the problem. Awaiting decision as to whether or not a new scene of data (which has been processed using the modified software) will be sent for use in the scene-to-scene registration task.
- TM Channel 3 (0.63 to 0.69 $\mu$ m (nominal) noted to have a detector "stitching" problem, most pronounced in bodies of water. The problem is under investigation by personnel at GSFC/GE.